

Notice of Allowability

Application No.

10/041,786

Examiner

William J. Klimowicz

Applicant(s)

GILL ET AL.

Art Unit

2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed October 12, 2004.
2. ☒ The allowed claim(s) is/are 1-10, 12-24, renumbered as claims 1-14, 18-23 and 15-17, respectively.
3. ☒ The drawings filed on 07 January 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>12-14-04</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Dominic Kotab on December 14, 2004.

The application has been amended as follows:

- (I) With regard to claim 1 (line 16) (the last line of the claim), after the phrase "width of the magnetic head" the following has been inserted --, wherein the width of the shields at the first point on the shields proximate to the magnetic recording disk define the track width of the magnetic head--.
- (II) Claim 11 has been cancelled in its entirety.
- (III) With regard to claim 16 (line 16) (the last line of the claim), after the phrase "width of the magnetic head" the following has been inserted --, wherein the width of the shields at the first point on the shields proximate to the magnetic recording disk define the track width of the sensor--.
- (IV) With regard to claim 16 (line 16), the phrase "magnetic head" has been changed to the word --sensor--.
- (V) With regard to claim 18 (line 15) (the last line of the claim), after the phrase "width of the magnetic head" the following has been inserted --, wherein the

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width of the shields at the first point on the shields proximate to the magnetic recording disk define the track width of the magnetic head--.

- (VI) With regard to claim 19 (line 17), the word "magnetic" has been deleted.
- (VII) With regard to claim 19 (line 17), after the phrase "width of the magnetic head;" (i.e., prior to the deletion of the word "magnetic") the following has been inserted -- wherein the width of the shields at the first point on the shields proximate to the magnetic recording disk define the track width of the head--.
- (VIII) With regard to claim 19 (line 18), the word "read" has been deleted.
- (IX) With regard to claim 19 (line 19), the word "read" has been deleted.
- (X) With regard to claim 19 (line 21), the word "read" has been deleted.
- (XI) With regard to claim 19 (line 22), the word "read" has been deleted.
- (XII) With regard to claim 20 (line 23) (the last line of the claim), after the phrase "width of the magnetic head" the following has been inserted --, wherein the width of the shields at the first point on the shields proximate to the magnetic recording disk define the track width of the magnetic head--.

Reasons for Allowance

The following is an Examiner's statement of reasons for allowance:

The prior art of record fails to fairly, teach, show or suggest, by either anticipating or rendering obvious, the invention as set forth in the claims of the instant application.

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Furthermore, an update of a search previously made does not detect the combined claimed elements as set forth in the pending claims. Additionally, the reasons for allowance of the claims over the prior art of record is believed to be clear from the prosecution history taken as a whole. More particularly, the instant invention (as set forth in independent claims 1, 16, 18, 19 and 20) provides for, *inter alia*, an extraordinary magnetoresistance (EMR) sensor, inclusive of a first shield and a second shield and positionable over a magnetic recording disk, and an EMR sensor positioned between the first shield and the second shield; wherein a plane in which the EMR sensor is positioned is perpendicular to magnetic flux associated with the magnetic recording disk. A width of the shields at a first point on the shields proximate to the magnetic recording disk are less than widths thereof at a second point on the shields distant the magnetic recording disk, whereby the widths are measured in a direction parallel to a track width of the magnetic head. Additionally, the width of the shields at the first point on the shields proximate to the magnetic recording disk define the track width of the head. That is, the widths are confined to a region so as not to exceed or alternatively be less than the width of a data track associated with the magnetic disk, as set forth in claims 1, 16, 18, 19 and 20.

Claims 17 and 21 provide for, *inter alia*, an extraordinary magnetoresistance (EMR) sensor, inclusive of a first shield and a second shield and positionable over a magnetic recording disk, an EMR sensor positioned between the first shield and the second shield; wherein a plane in which the EMR sensor is positioned is perpendicular to magnetic flux associated with the magnetic recording disk. Additionally, the first shield angles towards the second shield at a first point on the first shield proximate to the magnetic recording disk and the second shield does not angle towards the first shield at the first point.

The closet prior art includes Terunuma et al. (US 6,731,474 B2) who discloses an MR sensor (non EMR sensor, however) and a pair of shields (12 and 15, laminated), whereby a point on the shields proximate to an ABS of the head is smaller than a second point further from the ABS. However, the shields do not define the track width of the head since they are wider than the flux data transitions associated with the magnetic media; such transitions being written by a much less wider write pole (48). Additionally, the shields are essentially flat and no one shield is bent or angled toward another shield.

Thus, Terunuma et al. (US 6,731,474 B2) does not disclose an EMR sensor and further does not disclose a shield structure associated with a generalized MR sensor as set forth in the manner, function and relationship relative to other claimed structure as prescribed by the independent claims.

Additionally, Terunuma et al. (US 6,731,474 B2) does not provide, alone or in combination with the art of record or general knowledge within the art, any suggestion or teaching for the invention as set forth in the independent claims.

Conclusion

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

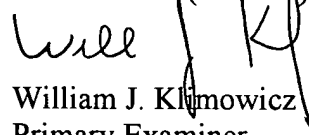
Any inquiry concerning this communication or earlier communications from the

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examiner should be directed to William J. Klimowicz whose telephone number is (703) 305-3452. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William J. Klimowicz
Primary Examiner
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WJK